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NOTICE OF ALLOWANCE AND FEE(S) DUE

7590

06/06/2002

CALENDAR/DOCKET DEPARTMENT  
PILLSBURY WINTHROP LLP  
725 S. FIGUEROA STREET #2800  
LOS ANGELES, CA 90017

EXAMINER

WASSUM, LUKE S

ART UNIT

CLASS-SUBCLASS

2177

707-003000

DATE MAILED: 06/06/2002

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/431,760	11/01/1999	ADAM J. WEISSMAN	0003.P001	9178

TITLE OF INVENTION: MEANING-BASED INFORMATION ORGANIZATION AND RETRIEVAL

APPLN. TYPE	SMALL ENTITY	ISSUE FEE	PUBLICATION FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	YES	\$640	\$0	\$640	09/06/2002

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. **PROSECUTION ON THE MERITS IS CLOSED.** THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN **THREE MONTHS** FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. **THIS STATUTORY PERIOD CANNOT BE EXTENDED.** SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE REFLECTS A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE APPLIED IN THIS APPLICATION. THE PTOL-85B (OR AN EQUIVALENT) MUST BE RETURNED WITHIN THIS PERIOD EVEN IF NO FEE IS DUE OR THE APPLICATION WILL BE REGARDED AS ABANDONED.

HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above. If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

- A. If the status is changed, pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above and notify the United States Patent and Trademark Office of the change in status, or
- B. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

If the SMALL ENTITY is shown as NO:

- A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check the box below and enclose the PUBLICATION FEE and 1/2 the ISSUE FEE shown above.

- ☐ Applicant claims SMALL ENTITY status.  
See 37 CFR 1.27.

II. PART B - FEE(S) TRANSMITTAL should be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). Even if the fee(s) have already been paid, Part B - Fee(s) Transmittal should be completed and returned. If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Box ISSUE FEE unless advised to the contrary.

**IMPORTANT REMINDER:** Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

# **PART B - FEE(S) TRANSMITTAL**

**Complete and send this form, together with applicable fee(s), to: Mail Box ISSUE FEE  
Commissioner for Patents  
Washington, D.C. 20231  
Fax (703)746-4000**

**INSTRUCTIONS:** This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 4 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

**CURRENT CORRESPONDENCE ADDRESS** (Note: Legibly mark-up with any corrections or use Block 1)

7590 06/06/2002

**CALENDAR/DOCKET DEPARTMENT  
PILLSBURY WINTHROP LLP  
725 S. FIGUEROA STREET #2800  
LOS ANGELES, CA 90017**

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

## **Certificate of Mailing or Transmission**

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Box Issue Fee address above, or being facsimile transmitted to the USPTO, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

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nonprovisional	YES	\$640	\$0	\$640	09/06/2002

EXAMINER	ART UNIT	CLASS-SUBCLASS
WASSUM, LUKE S	2177	707-003000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
- ☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list (1) the names of up to 3 registered patent attorneys or agents OR, alternatively, (2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 \_\_\_\_\_  
2 \_\_\_\_\_  
3 \_\_\_\_\_

## **3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)**

**PLEASE NOTE:** Unless an assignee is identified below, no assignee data will appear on the patent. Inclusion of assignee data is only appropriate when an assignment has been previously submitted to the USPTO or is being submitted under separate cover. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) ☐ individual ☐ corporation or other private group entity ☐ government

4a. The following fee(s) are enclosed:

4b. Payment of Fee(s):

- ☐ Issue Fee
- ☐ Publication Fee
- ☐ Advance Order - # of Copies \_\_\_\_\_

- ☐ A check in the amount of the fee(s) is enclosed.
- ☐ Payment by credit card. Form PTO-2038 is attached.
- ☐ The Commissioner is hereby authorized by charge the required fee(s), or credit any overpayment, to Deposit Account Number \_\_\_\_\_ (enclose an extra copy of this form).

Commissioner for Patents is requested to apply the Issue Fee and Publication Fee (if any) or to re-apply any previously paid issue fee to the application identified above.

(Authorized Signature)

(Date)

**NOTE:** The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, Washington, D.C. 20231. **DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, Washington, DC 20231.**

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

TRANSMIT THIS FORM WITH FEE(S)



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UNITED STATES

EXAMINER
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WASSUM, LUKE S

ART UNIT	PAPER NUMBER
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2177

DATE MAILED: 06/06/2002

**Determination of Patent Term Extension under 35 U.S.C. 154 (b)**  
(application filed after June 7, 1995 but prior to May 29, 2000)

The patent term extension is 0 days. Any patent to issue from the above identified application will include an indication of the 0 day extension on the front page.

If a continued prosecution application (CPA) was filed in the above-identified application, the filing date that determines patent term extension is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) system. (<http://pair.uspto.gov>)

# Notice of Allowability

Application No.

09/431,760

Examiner

Luke S. Wassum

Applicant(s)

WEISSMAN ET AL.

Art Unit

2177

## -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to Amendments filed on 15 March and 29 May 2002.
2. ☒ The allowed claim(s) is/are 1,4,7,12-15,18 and 22-37, now renumbered 1-24.
3. ☒ The drawings filed on 15 March 2002 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All   b) ☐ Some\*   c) ☐ None   of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.
5. ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
  - (a) ☐ The translation of the foreign language provisional application has been received.
6. ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application. **THIS THREE-MONTH PERIOD IS NOT EXTENDABLE**

7. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
8. ☐ CORRECTED DRAWINGS must be submitted.
  - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
    - 1) ☐ hereto or 2) ☐ to Paper No. \_\_\_\_\_.
  - (b) ☐ including changes required by the proposed drawing correction filed \_\_\_\_\_, which has been approved by the Examiner.
  - (c) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No. \_\_\_\_\_.

**Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the top margin (not the back) of each sheet. The drawings should be filed as a separate paper with a transmittal letter addressed to the Official Draftsperson.**

9. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

### Attachment(s)

- |  |   |
|--|---|
| 1 <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                             | 2 <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)              |
| 3 <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                    | 4 <input checked="" type="checkbox"/> Interview Summary (PTO-413), Paper No. <u>9</u> . |
| 5 <input type="checkbox"/> Information Disclosure Statements (PTO-1449), Paper No. _____.              | 6 <input type="checkbox"/> Examiner's Amendment/Comment                                 |
| 7 <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit of Biological Material | 8 <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance     |
|  | 9 <input type="checkbox"/> Other  |

### **DETAILED ACTION**

#### **Response to Amendment**

1. Receipt of Applicant's Amendment, filed 15 March 2002, is acknowledged.
2. As a result of the Amendment, claims 2, 3, 5, 6, 8-11, 16, 17 and 19-21 have been cancelled, claims 1, 4, 7, 14, 18, 22 and 23 have been amended, and claims 25-37 have been added.
3. Receipt of Applicant's Supplemental Amendment, filed 29 May 2002, is acknowledged.
4. As a result of the Supplemental Amendment, claim 18 was amended.
5. Claims 1, 4, 7, 12-15, 18 and 22-37 are now presented for examination.

#### **Oath/Declaration**

6. Receipt of a new Declaration is acknowledged. The pending objection to the Oath/Declaration is withdrawn.

#### **Drawings**

7. Receipt of corrected drawings, filed 15 March 2002, is acknowledged. These drawings are approved by the examiner. The pending objections to the drawings are withdrawn.

### Specification

8. Receipt of a new Abstract is acknowledged. As a result, the pending objection to the Specification is withdrawn.

### Claim Rejections - 35 USC § 112

9. As a result of the amendment to claim 4, the pending rejection under 35 U.S.C. § 112 is withdrawn.

### Allowable Subject Matter

10. Claims 1, 4, 7, 12-15, 18 and 22-37 are allowed.

11. The following is an examiner's statement of reasons for allowance:

Prior art of record fails to teach a method of searching a semantic space through the use of a semantic distance, wherein the semantic distance is measured between concepts by evaluating steps along a semantic path between concepts and applying a dynamic scaling factor to the perceived distance of each step along the semantic path according to types of relationships followed, directionality of the relationships, changes in direction along the semantic path, and number of competing relationships followed at each step.

The prior art has many examples of the calculation of a semantic distance between words and/or concepts in a semantic network, but none include all of the features of the claimed invention. The closest prior art seems to be the work of **David St-Onge** ("Detecting and Correcting Malapropisms with Lexical Chaining") and **Graeme Hirst and David St-Onge** ("Lexical Chains as Representations of Context for the Detection and Correction of Malapropisms",

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Chapter 13 of "WordNet: An Electronic Lexical Database", edited by Christiane Fellbaum), both of which teach the calculation of a semantic distance that is dependent upon having concepts connected by a path that is not too long and that "does not change direction too often". However, their work includes rules as to which types of direction changes are permissible and which are not, while the instant invention is more flexible, allowing different types of changes in direction to influence semantic distance to differing degrees, either positively or negatively.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

**Shiiyama et al.** (U.S. Patent 6,247,009) teaches an image data searching system, including a synonym dictionary wherein a conceptual distance is calculated between concepts.

**Budanitsky and Hirst** ("Semantic Distance in WordNet: An Experimental, Application-Oriented Evaluation in Five Measures") teaches five proposed measures of similarity or semantic distance in WordNet.

**Mihalcea and Moldovan** ("Semantic Indexing using WordNet Senses") teaches a Boolean Information Retrieval system that adds word semantics (semantic indexing) to word based indexing.

**Budanitsky** ("Lexical Semantic Relatedness and Its Application in Natural Language Processing") is a comprehensive study of recent computational methods of measuring lexical semantic relatedness.

**Resnick** ("Semantic Similarity in a Taxonomy: An Information-Based Measure and its Application to Problems of Ambiguity in Natural Language") teaches a measure of semantic similarity in an IS-A taxonomy based on the notion of shared information content.

**Smeaton and Quigley** ("Experiments on Using Semantic Distances Between Words in Image Caption Retrieval") teaches information retrieval based on pre-computed semantically-based word-word similarities, and using these as part of a document-query similarity measure.

**Sutcliffe et al.** ("Beyond Keywords: Accurate Retrieval from Full Text Documents") teaches a text retrieval system using a semantic representation scheme based on ontological distance.

**Chakravarthy and Haase** ("NetSerf: Using Semantic Knowledge to Find Internet Information Archives") teaches a program for finding information archives on the Internet using natural language queries by extracting structured, disambiguated representations from queries and matching them to hand-coded representations of the archives using semantic knowledge from WordNet.

**Sutcliffe et al.** ("The Automatic Acquisition of a Broad-Coverage Semantic Lexicon for use in Information Retrieval") teaches techniques for constructing a semantic lexicon of broad coverage from machine tractable sources.

**Richardson et al.** ("Using WordNet for Conceptual Distance Measurement") teaches the development of a conceptual distance measure between words based on a large thesaurus.



**Buckley et al.** (“Automatic Query Expansion Using SMART: TREC3”) teaches completely automatic approaches to the understanding and retrieval of large quantities of text, wherein massive query expansion is applied to queries.

**Voorhees** (“Query Expansion using Lexical-Semantic Relations”) teaches document retrieval from full-text databases wherein query vectors are expanded with words that are lexically related to the original query words.

**Rada et al.** (“Development and Application of a Metric on Semantic Nets”) teaches a metric, called Distance, which can be used to assess the conceptual distance between sets of concepts when used on a semantic net of hierarchical relations.

**Brachman and Schmolze** (“An Overview of the KL-ONE Knowledge Representation System”) teaches the KL-ONE system for representing knowledge in Artificial Intelligence programs.

**Collins and Loftus** (“A Spreading-Activation Theory of Semantic Processing”) teaches the spreading-activation theory of human semantic processing.

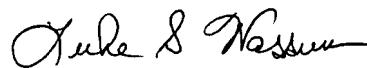
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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Luke S. Wassum whose telephone number is 703-305-5706. The examiner can normally be reached on Monday-Friday 8:30-5:30, alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John E. Breene can be reached on 703-305-9790. The fax phone numbers for the organization where this application or proceeding is assigned are 703-746-7239 for regular communications and 703-746-7238 for After Final communications.

In addition, INFORMAL or DRAFT communications may be faxed directly to the examiner at 703-746-5658.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.



Luke S. Wassum  
Art Unit 2177

lsw  
May 30, 2002



JEAN R. HOMERE  
PRIMARY EXAMINER